The Qualitative Determination of Naval Officer Manpower Requirements

Report of Research

Conducted for the Bureau of Naval Personnel, Department of the Navy

Office of Naval Research Contract Nonr-520(00)

by

C. Thomas Clifton

Principal Investigator

November 1952

THE CLIFTON CORPORATION

WASHINGTON, D. C.

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PREFACE

This study is limited to the occupational classification aspects of the qualitative determination of naval officer manpower requirements. While perhaps basic to any final determination, it does not encompass such equally important problem areas as mental and physical demands, the use of marginal or limited duty personnel, and the designation of billets which can be filled by WAVES or civilians.

In order that this report might enjoy the widest possible circulation and therefore be of maximum use, the minutiae, much of which is of a classified nature and all of which is separately contained in transmittal documents, field validation reports, and memoranda, have been omitted.

ACKNOWLEDGEMENTS

In a project of this nature which, in scope, involved hundreds of contacts within all branches of the naval establishment, it is impossible to single out the uniformed and civilian personnel whose interest, enthusiasm and effort contributed so heavily to the final results. To them we gratefully express our appreciation for a job well done.

Teamwork of the highest order characterized the project from the very beginning. To Captain F. J. Becton, USN, and his successor, Commander R. H. Close, USN, who directed the work of the Complements & Allowances Branch, BuPers, and their staff--particularly their complement writers--belong a large share of the credit for a smooth-working study.

Mr. D. George Price, Head, Billet & Qualifications Research Branch, BuPers Research, and his staff assigned to the project--LCDR J. J. White, USNR, who was directly responsible for the development of the MANUAL OF OFFICER NAVY JOB CLASSIFICATIONS, Mr. E. J. Ryan and Mr. C. F. Newhouse--were invaluable, not only with respect to the professional counsel and guidance which they gave unstintingly, but also in terms of the able administrative direction they achieved.

Were it not for the inspirational leadership of Captain E. K. VanSwearingen, USN, BuPers Director of Research, and the understanding support of Captain G. E. Peckham, USN, Head, Mobilization Plans and Policies Branch, Office of the Chief of Naval Operations, the project would not have been possible.

Finally, the assistance of the Office of Naval Research, particularly Messrs. J. T. Wilson and D. D. Smith, of the Personnel & Training Branch, Psychological Sciences Division, and Mr. R. F. Lynch, Contract Administrator, Southeastern Area, is deeply appreciated.

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SUMMARY

In order that the Navy might determine qualitatively its officer manpower requirements for mobilization, research was undertaken to --

Investigate the methods and techniques by which the occupational classification of naval officer billets can be accomplished;

Classify and code all officer billets, contained in the billet supplements for each naval activity, in accordance with the Navy's Mobilization Personnel Allocation Plan;

Validate the MANUAL OF OFFICER NAVY JOB CLASSIFICATIONS (ONJC) through the classification and coding experience;

Conduct field validation studies in difficult classification problem areas, to acquire essential billet data, and to validate both coding and the ONJC.

Investigation was conducted in two phases: First, Experimental and Planning, during which representative ship and shore establishment officer billet supplements were analyzed, to determine the adequacy of data, to familiarize the nucleus staff with the ONJC and to test the ONJC as a coding instrument, and to establish coding policies, methods and procedures; Second, Operational, during which billet supplements were classified and coded upon their receipt from BuPers, necessary data were gathered, recommendations for ONJC additions, deletions and revisions were submitted as the instrument was validated in the actual coding process, and both informal and formal field validations were conducted.

As a result of the investigation which, in scope, covered every type of naval activity and every kind of officer billet, it can be reported that --

1. Upon machine tabulation, not only will the Navy have a reliable first-count of its qualitative manpower requirements for mobilization, but also substantial savings in both critical skills and numbers should result.

2. The ONJC, while requiring some additional refinements and, of course, careful maintenance over the years, is a practical and valid classification instrument.

3. Field validation was found to be a necessary adjunct to the coding of non-standard type activity billets when definitive billet data were lacking.

4. Through a better understanding of objectives and methods, particularly classification and the use of billet descriptions, better manpower planning will result.

In order that the quality of manpower planning and personnel management practices may be improved, a number of recommendations are made:

1. To assure reliable and valid classification and coding at the activity level, a Manual for Field Classifiers should be developed.

2. Such a Manual should cover the relationship of classification to mobilization planning, naval classification, and the What, Why and How of classifying and coding officer billets.

3. Present personnel management curricula and course materials should be expanded to include the subject of officer billet classification.

4. The combined resources of BuPers Complements & Allowances and Research should be utilized for quality control of the coding end product.

5. Field validation techniques used by the contractor should be employed to spot-check the coding operations of a particular activity.

6. Consideration should be given to the coding of allowances, to provide necessary planning information, particularly with respect to procurement, training and utilization needs.

7. The suggestion that complements and allowances be physically combined on the same form is concurred in, since such a combination would facilitate coding of allowances, assure a more orderly expansion, and provide a tool for the more critical evaluation of plans.

8. Additional changes and improvements are required to make the ONJC an even better instrument. (Specific recommendations have already been submitted to BuPers by the contractor.)

9. In order that the ONJC may be properly maintained, sufficient staff should be made available for this purpose and such work should be given a high priority.

10. A procedure is needed to assure the systematic exchange of data between field activities and the Bureau regarding changes to the ONJC.

11. To improve planning at the activity level, consideration should be given to the development of a Manual for Mobilization Planners.

12. Such a Manual should cover the policies, principles and methods of organizational planning, workload distribution, establishment of billets, etc.

13. The development of the Manual could well be a joint project of BuPers and the Navy Management Engineer's office.

14. The contents of the Manual for Mobilization Planners could provide the basis for P. G. School and correspondence courses, and should be added to staff college curricula if not already emphasized.

15. Statements on the Navy's manpower policy, planning objectives, and planning procedures should be issued periodically to improve the understandings and attitudes of planning personnel.

CHAPTER I. THE PROBLEM

This study grew out of the need for more precise occupational information regarding the Navy's officer manpower requirements, particularly for mobilization planning purposes. In effect, it is the outgrowth of plans, policies, and research directed over the past decade to the improvement of the Navy's manpower management.

At the outset of the investigation, it was evident to the contractor that naval planning, even before the Korean outbreak, recognized the seriousness of the manpower situation. It appeared that some of the basic premises which underlie planning policies and procedures could be summarized as follows:

a. The Nation's manpower supply is limited; even more serious than the limitation of numbers is the limitation of essential skills;

b. The numerical superiority of potential enemies must be offset by the qualitative superiority of the Nation's manpower;

c. The demands of the military must be balanced against the demands of the civilian economy which supports the military;

d. Within the military establishment, the demands of the Navy must be balanced against the requirements of the other services.

In terms of the mission and tasks assigned, the Navy has taken significant steps to improve its manpower planning since World War II. Historically, and growing out of the rather small, neatly-defined, pre-World War II Navy, planning was primarily quantitative--by Line and Staff, rank, and numbers. With the advent of World War II, however, and the transition from peacetime to full mobilization, the Navy became a large, highly complex organism, requiring relatively more "specialists".

One of the most important tools developed was the Officer Qualifications Code, used to classify the individual's Navy and civilian qualifications. Another was the Corps Code designator which breaks down the broad line and staff categories to earmark gross specialization and control the distribution established by law. Finally, the Personnel Accounting System enabled the Navy to inventory and tabulate its personnel by activity, corps code and rank, quickly and accurately by machine.

These tools made it possible for the Navy to develop its Personnel Allocation Plans through which its total manpower could be distributed, in peacetime and in war, to the myriad activities of the fleet, air arm and shore establishment.

Not until the Bureau of Naval Personnel developed the MANUAL OF OFFICER NAVY JOB CLASSIFICATIONS (ONJC)1/, however, was it possible

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1/ - MANUAL OF OFFICER NAVY JOB CLASSIFICATIONS, Bureau of Naval Personnel, Department of the Navy, NAVPERS 15839, April 1952, Restricted Security Information.

for the Navy to express its manpower requirements by kind of billet, and thus, in turn, more precisely define its manpower "demand" qualitatively.

Work on this new instrument had been begun in 1948. Over 10,000 billet descriptions, covering every kind of function performed in the naval establishment, were used as basic data in the design of classifications and codes. Early in 1951, the manual was completed. It contained approximately 1,600 officer billet classifications and codes, distributed over 10 major fields and 80 sub-fields or groups.

When the Chief of Naval Personnel's recommendations that officer billet codes become a component of billet supplements (mobilization complements) was approved, the groundwork was laid for the Navy's newest development in manpower planning: the quantitative and qualitative expression of its officer needs.

When it was determined that investigation into the methods that could be employed, as well as the conduct of the initial classification and coding effort, together with the validation of the ONJC, could best be done outside the naval establishment, the research reported herewith was undertaken.

CHAPTER II. RESEARCH OBJECTIVES

With respect to officer personnel, the specific research objectives of The Clifton Corporation, as mutually developed by the contractor and the Bureau of Naval Personnel, under ONR Contract Nonr-520(00), were as follows:

1. The investigation of the methods and techniques by which the occupational classification of naval officer billets can be accomplished.

   The end-products of this research will be policies and procedures governing the initial classification and coding of officer billets, as well as recommendations regarding long-range, Navy-wide classification and coding.

2. The classification and coding of all officer billets, contained in the billet supplements for each naval activity, in accordance with the Navy's Mobilization Personnel Allocation Plan.

   The end-products of this research, following machine tabulation, will be M / 1, M / 3, and M Peak totals by ONJC code, with sub-totals by rank, indicating officer designator code. These totals, in effect, will express the Navy's quantitative and qualitative officer mobilization requirements.

3. The validation of the ONJC through the classification and coding experience.

   The end-products of this research will be an improved classification instrument, reflecting ONJC revisions occasioned by actual classification and coding experience.

4. The conduct of field validation studies in difficult classification problem areas, to acquire essential billet data, and to validate both coding and the ONJC.

   The end-products of such studies will be improved classification and coding, better validation of the ONJC, and the development of methods for eventual quality-control of Navy-wide, decentralized classification.

CHAPTER III. METHODS

In order to meet the research objectives, investigation was divided into two major phases: (1) Experimental and Planning, concerned with the policies and procedures to be employed: and (2) Operational, covering classification and coding, validation of the ONJC, and field study.

A. FIRST PHASE: EXPERIMENTAL AND PLANNING

During the first three months of the study, representative ship and shore establishment officer complement billet supplements were analyzed, to determine the adequacy of data, to familiarize the nucleus staff with the ONJC and to test the ONJC as a coding instrument, and to establish coding policies, methods and procedures.

The following conclusions were reached:

1. The Data

The data to be classified and coded appear on the Billet Supplement, under the column headed "Billet Description," and consist of short billet titles, ranging from the very specific, such as "Naval Personnel Officer" and "Planning & Estimating Superintendent," to a very general title that simply indicates the broad nature of the billet, such as "Project Officer," or even earmarks the organizational sub-division, such as "Plant Inventory Branch."

It was found that for standard-type activities, such as ships and air squadrons, coding could be accomplished with only minor difficulty, from billet titles alone, since through long usage, custom and tradition, such titles meant the same thing throughout the Navy.

For most activities of the shore establishment, however, such as naval bureaus, laboratories, shipyards and stations, as well as major commands and subordinate staffs, where billet titles have not been standardized, it was found that coding from titles alone made for considerable inaccuracy. In one bureau, for example, it was found that a 30% error resulted from title coding. As definitive billet data were obtained, however, not only were errors eliminated, but also all previously uncodeable billets were properly classified and coded.

2. The Code

The experimental coding revealed that, in general, the ONJC was an excellent classification structure. As might be expected from any new model, however, certain minor deficiencies, such as the absence of a few codes, overlapping, and in a few cases, too much generality, or too much specificity, were found. It was apparent that as coding proceeded, these "bugs" would be eliminated and improvements effected.

3. Coding Policies, Methods and Procedures

Optimum coding conditions obtain when the data are complete in themselves and can be readily interpreted, and when the code to be assigned has been perfected through usage. Under such conditions, an intelligent coding clerk can assign the appropriate classification codes to data, quickly and accurately, achieving less than 1% error.

Since the data were found inadequate for most non-standard naval activities, the contractor recommended that billet descriptions be obtained from all such activities, prior to coding. This was found to be not administratively feasible, however, and the following policies and procedures were adopted:

a. The contractor was to classify from billet titles, in so far as possible, and to enter the appropriate codes in the column provided on the billet supplement;

b. All sources of data in the Washington area, such as billet descriptions on file, Organization Manuals, and interviews with informed officials, were to be utilized for the further coding of billets, not codeable from titles alone;

c. Finally, after exhausting the above resources, the BuPers Complements and Allowances Branch would request the cognizant activity to supply necessary billet descriptions.

In terms of staffing, the above policies and procedures had this effect: instead of coding clerks, research analysts, with the capacity for sound classification judgments and the ability to interview high-ranking naval officials, were requisite. Furthermore, each analyst had to have a naval background, in order to interpret naval organization, naval billets and naval vocabulary. While it was difficult to procure individuals with such a combination of qualifications, an excellent staff was eventually obtained.

B. SECOND PHASE: OPERATIONAL

1. Classification and Coding

While classification and coding were geared to the aforementioned policies and procedures, a number of improvements in organization and methods were effected, as the project moved into the operational phase. Among the more important were the following:

a. Coordination

To achieve better teamwork, a Policy Coordination Committee, composed of BuPers Complements & Allowances, BuPers Research and Contractor representatives, was created.

b. Workload Control

A control system, based upon an analysis of the total estimated workload, a perpetual inventory of billets analyzed, an internal scheduling and assignment system, and a reporting procedure were established by the contractor.

The estimated classification and coding workload was derived from a machine run of the Mobilization Personnel Allocation Plan. Using such summary data, together with the allowance PAP for Fiscal 1952, billet data were transferred to 5 x 8 cards. On each card were entered the activity code number, the activity type (or types) and the maximum number of billets, depending upon phasing. Finally, based upon coding experience during Phase One, an estimate of the number of billets to be coded was also entered on each card. When totalled, as of 15 January 1952, the contractor's workload was estimated to be 66,206 billets for which classification judgments and coding entries were required.

As the project neared completion, a revision of this estimate was made, based upon MobPAP additions and deletions. Each section of the Complements & Allowances Branch was asked to submit remaining workload estimates, using the MobPAP as a guide, and these estimates were checked against the workload balances appearing on the contractor's control cards. As a result, on 15 July 1952, the January estimate was revised upward by 5,478 billets, to a new total estimate of 71,684.

Following the development of workload data, a system was devised for the perpetual inventorying and reporting of progress. Each supplement was logged in and a record of its assignment for classification and coding kept. As the supplement was coded, reviewed and approved, its movement was reflected on assignment sheets, from which weekly status reports were prepared for the Principal Investigator. Upon final approval and typing of a transmittal form, the coding data were entered on the appropriate control card, so that at all times, for each activity type, the balance of the workload was known.

c. Data

In the absence of complete and definitive initial data, systematically supplied in the form of billet descriptions for each billet to be classified and coded, a number of steps were taken to improve the quality of data and thus facilitate coding.

Working closely with complement writers of the Complements and Allowances Branch, arrangements were made for the submission of billet supplements accurately identified and defined, setting forth organization breakdowns, clarifying titles used, and specifying, for example, the kinds of "Assistants" desired. These improvements resulted in better coding.

The contractor provided examples of good and bad billet descriptions, which were forwarded by Complements & Allowances as a

guide for activities in submitting billet data. Whenever feasible, contractor's staff met with activity representatives in the Washington area, to explain the project and the requirements for good data. Finally, as time permitted, with close coordination by Complements and Allowances, staff members interviewed appropriate naval officials in the Washington area to clarify organizational and billet data and to obtain information required for coding. In excess of 200 such interviews, exclusive of field validation, were conducted.

A further measure to improve billet data resulted in the preparation of standard billet requirements, covering standard organizations. This applied particularly to such fields as Supply, Medical and Naval Engineering.

d. The Code

To facilitate constant improvement of the ONJC, a transmittal sheet was designed for forwarding completed research, pointing out problems encountered, and recommending ONJC revisions. This same transmittal sheet was used by BuPers Research to report back to the contractor the action taken on the recommendations, as a guide in subsequent classification and coding.

In addition to the routine reporting of ONJC recommendations, many of which were actual drafts of proposed classification modifications, the field validation studies, reported under 2 below, went into detail regarding proposed changes.

e. Coding

A number of internal coding procedure refinements were developed by the contractor to minimize error and maximize quality coding. In general, each supplement was subjected to the following treatment: (1) It was initially assigned to a staff analyst for study and coding of billets from title alone; (2) If a Washington area activity, the analyst attempted to procure data for the uncoded, problem billets, and to further code; (3) After data-gathering efforts and coding were completed, the supplement was reviewed carefully by the supervising analyst; (4) Upon completion of staff work, the supplement was reviewed and approved by the Principal Investigator. If, at any time, it was apparent that problems could be solved by a staff conference, such a device was employed to gain the benefit of each staff member's experience. Not until all local resources were exhausted were the billet supplements returned to BuPers for acquisition of billet data.

To the extent possible, individual analysts specialized in areas of their previous naval and coding experience, thus making possible, within the contractor's staff, authoritative interpretations in such fields as medical, supply, naval engineering, ordnance and electronics. In turn, this specialization greatly facilitated liaison with the various bureau and office technical advisors, particularly when administrative arrangements for the gathering of data were required.

Whenever feasible, the contractor developed master coding "keys" for the coding of similar activity types, such as ships, naval stations, shipyards, hospitals, air stations and district staffs. While the development of such keys initially entailed intensive, plodding research, the net result was faster and better coding in the long run.

2. Field Validation Studies

To verify coding, obtain definitive data, and to improve the ONJC, visits were made to a number of naval activities, as time and workload permitted.

On an informal basis, and chiefly during the experimental phase, visits were made to such Washington area activities as BuSandA, Office of Naval Research, the Naval Medical Center, Bethesda, and the Naval Air Test Center, Patuxent.

On a formal basis, following careful planning, three staff members devoted two weeks to the study of five major Atlantic Fleet Staffs, including CinCLant, ServLant, AirLant, PhibLant and CruLant, which, because of their complexity and rapidly changing structure, presented difficult classification problems.

Finally, four staff members devoted two weeks to the study of Headquarters, Commander Eastern Sea Frontier; Headquarters, Third Naval District; and twenty-one other subordinate activities in the New York City area, as follows:

DPWO, 3rd Naval District
DirLantDocks
SupInsMat
BAGR, Eastern District
New York Naval Shipyard
InsOrd, Ford Instrument, Long Island City
Naval Dental Clinic, Brooklyn
Field Branch, BuMed, Brooklyn
Naval Supply Activities, New York
Naval Clothing Supply Office, New York
Supervisory Cost Inspector, 3rd Naval District
Naval Material Cataloging Office, New York
Naval Supply Facility, New York
Regional Accounts Office, New York
Ship's Store Office, Brooklyn
Naval Supply Depot, Bayonne
Central Freight Control Office, Bayonne
Requisition Control Office, Bayonne
Naval Supply Corps School, Bayonne
Supply Research & Development Facility, Bayonne
Naval Salvage School, Bayonne

The above activities were selected because of their geographical homogeneity, in the interest of economy and efficiency of field operations, because they were representative of problems encountered in most of the ONJC fields, and because many were prototypes of like activities.

The general procedure followed in the course of validation visits, modified slightly in some cases due to the organization of particular activities, was as follows:

Step 1 - Reporting in at activity, verification of mission of contractor's personnel and their security clearance.

Step 2 - Visits of courtesy to Commanding Officer and/or Chief of Staff, Executive Officer, Deputy or Assistant Officer in Charge.

Step 3 - Conference with Flag Secretary, Administrative Officer, Planning Officer and/or Personnel Officer to explain the problem involved in validation of ONJC coding of officer complement, and to request access to available data on billets, such as (in order of preference):

Specific billet descriptions
Staff or organization manuals
Functional organization charts
Schematic organizational charts
Roster of Officers (NavPers 353)
Other available duplicated or typed data

Step 4 - Study by contractor's personnel of data obtained, to gain understanding of organization and validate coding on supplements as far as possible from available data.

Step 5 - Discussion with Planning, Administrative and/or Personnel Officer to clear up remaining problem areas and check codings not covered in available data.

Step 6 - When required, visits to heads of staff sections o · other subdivisions of activity to obtain specific data on individual billets under their cognizance. Such visits to be supplemented, if necessary, by discussions with subordinate supervisory personnel to clarify details still unsettled.

CHAPTER IV. RESULTS OBTAINED

A. CLASSIFICATION AND CODING

The following activities are representative of the myriad types studied and indicate the diversity of the classification and coding project:

Combatant ships--from small landing craft to battleships;

Auxiliary ships--from coastal surveying vessels to submarine tenders and experimental ships;

Air activities--from carrier squadrons and air stations to experimental and test activities;

Shipyards, stations, repair bases and associated naval engineering laboratories;

All bureaus and offices of the Navy Department; Fleet, Sea Frontier, District, and subordinate staffs;

Hospitals, dispensaries and clinics, together with associated medical and dental research activities;

Regional accounts offices, cost inspectors, supply centers and the Naval Clothing Factory;

Ordnance plants, laboratories and inspectors' offices;

Overseas components--from boat pools to amphibious construction battalions.

Including the experimental phase, during the first three months of research, a total of 2,370 billet supplements, with a total of 69,919 billets requiring analysis, classification and coding, were studied.

The following tables summarize the research quantitatively:

TABLE 1. BILLETS

	Number	Percentage
Revised estimate of total billets to be classified and coded	71,684	100.00
Billets studied, 7 1/51 - 10/31/52	69,919	97.54
Billets classified and coded	64,478	89.95
Billets uncoded	5,441	7.59
Uncoded billets requiring data	5,344	7.47
Uncoded billets still requiring ONJC modifications.....	97	.12

TABLE 2. SUPPLEMENTS

	Number	Percentage
Billet supplements studied	2,370	100.00
Billet supplements completely coded	2,037	85.95
Billet supplements incompletely coded	333	14.05

TABLE 3. ACTIVITIES[1/]

Activities to be coded	10,907[2/]	100.00
Activities coded	10,362	95.03
Activities remaining to be coded	545	4.97

When it is realized that the contractor's backlog of supplements for study was contingent upon their preparation and issuance by the Complements and Allowances Branch which, in turn, was dependent upon their submission by the various naval activities, the volume of research work accomplished is considered very substantial. As indicated above, every kind of naval activity, both typical and atypical, was studied. Each, in its way, presented different problems which taxed the administrative skills of BuPers and the professional skills of the contractor.

As the officer phase came to a close, arrangements were made for the coding residue to be assumed by the Complements & Allowances Branch, working closely with the BuPers Research Division. With the experience gained in the course of research, the final goal of 100% classification and coding of all officer billets will be realized.

B. VALIDATION OF THE ONJC

The test of any classification structure is pragmatic; Does it work? Is it accepted? Does it accomplish, in practice, what it was intended to accomplish, in design?

Seldon in classification research does the opportunity present itself to validate the instrument in advance of publication and field use. Such an opportunity presented itself in this study. In fact, actual publication was deferred for several months in order that necessary changes could be made in the classifications and codes.

1/ - Source: Complements & Allowances Progress Report, as of 9/1/52.

2/ - The difference in number of activities and number of supplements is accounted for by the fact that one supplement was frequently used for a number of similar activities.

Since inception of research, 73 new codes were added, 28 deleted, and 229 modified, a total of 330 changes in all. These changes, of course, were made by personnel of the BuPers Research Division, pursuant to the recommendations and suggestions submitted by the contractor.

As a result of this research, the ONJC is a better instrument today than when first designed. Fortunately, most of the above changes were made in time to be incorporated into the printed edition. Meanwhile, a vast reservoir of data awaits further processing by BuPers Research, to further refine the classifications.

C. FIELD VALIDATION

As a result of field studies, conducted informally and formally with respect to difficult classification problem areas, for the purpose of acquiring billet data and validating coding and the ONJC, it may be concluded that:

1. Field validation is a necessary adjunct to the coding of non-standard type activity billet supplements when definitive billet data are lacking.

Illustrative of the errors which resulted from the coding of titles alone (in lieu of billet data), and which were corrected upon further investigation are the following:

On the billet supplement for one naval activity, there appears the billet title, BARRACK OFFICER. This was coded "3910 - Casual Unit Personnel Officer," which is the classification assigned billets whose primary function is military administration and control of personnel assigned to barracks. Validation revealed that the billet should be coded "4065 - Public Works Maintenance Officer."

Each of three activity field offices indicated the requirement for a PSYCHOLOGIST. Written billet descriptions submitted upon request of the activity's administrative officer resulted in the assignment of "2245 - Psychological Warfare Officer" and "3955 - Personnel Evaluation and Measurements Officer" to two of the billets, while preliminary discussion with the mobilization planning officer concerned with the third billet indicates the use of "2225 - Experimental Psychologist, Equipment Design."

The billet supplement for a bureau listed four ASSISTANTS TO COUNSEL, in the office of General Counsel. Investigation revealed that these billets broke down into the following legal specialties: "2515 - Legal Officer, Admiralty," "2525 - Contracts," "2527 - Insurance," and "2550 - Real Property."

On one of the major operating staffs, a billet titled ASSISTANT TO OPERATIONS was coded "9065 - Staff Operations and Plans Officer." As a result of field study, it was learned that the billet involves preparation and evaluation of hydrographic data, requiring the code of "2355 - Staff Hydrographic Officer."

The Supplement for a naval hospital carried a billet title of WARD MEDICAL OFFICER, which was phased so as to cover 29 officers at peak mobilization. Further inquiry resulted in the following breakdown: "0070 - General Practitioner" was applied to 13 billets; "0215 - General Surgeon" was applied to two billets; the remaining 14 billets required the following 14 specialties, Anesthesiology (0107); Cardiology (0113); Gastroenterology (0133); Internal Medicine (0140); Neurosurgery (0225); Obstetrics and Gynecology (0230); Ophthalmology (0235); Orthopedics (0245); Otolaryngology (0250); Pathology (0157); Pediatrics (0160); Psychiatry (0167); Radiology (0177); and Urology (0270).

The incidence of errors made in coding from titles alone is reflected in the following accounts:

a. Atlantic Fleet Staffs

Of the 557 billets in the complements of all five staffs visited, 359 (64.5%) had been coded in Washington prior to field validation. Coding was based almost entirely on billet titles alone, for lack of definitive functional data.

The codes assigned to 173 (48%) of the previously coded billets were changed as a result of data obtained at the activity level. Of the 198 previously uncoded billets, 146 (74%) were coded during the field visit. Of the 92 billets (16.5% of the total of 557) which remained uncoded, only 11 were uncoded for lack of an ONJC code covering their functions. This small number reflects the high validity of the ONJC as a classification instrument in the Fleet Staff field.

The remaining 81 billets remained uncoded due to changes in staff organization, and hence, in assignment of functions and designation of billets, since current complements were developed. Subsequent to the visit, all of these were coded as a result of new data submitted.

b. New York Area Activities

In the 20 activities visited, for which there were approved complements, all billets, a total of 1,065, had been coded prior to field validation. As with the Fleet staffs, coding had been based almost entirely on interpretation of billet titles.

Codes assigned to 110 (10.3%) of the billets were changed, based on data obtained at the activity level. The reasons for the incorrect original codings were:

Misleading Billet Titles	28 codes
Incorrect Billet Data	3
Inadequate Billet Data.....	59
Lack of suitable ONJC Codes.....	13
Analysts' errors of judgment	6
Clerical errors in supplement.....	1
Total Codes Changed.....	110 codes

Only 13 (1.2% of the total of 1065) billets remained uncoded for lack of adequate ONJC codes to identify, in some degree, the functions performed in the billets. However, codes which were only partially suitable, or covered only the general nature rather than the specific functions, were employed tentatively for 23 billets whose functions require new codes, or extensive modification of existing codes, for their accurate classification.

The low ratio of uncoded billets (1.2%) indicates the validity of the ONJC as a classification instrument for the varied fields of naval shore activities represented in the sample.

2. In view of the foregoing, the necessity for definitive billet data, as a prerequisite to accurate coding is reemphasized. As a corrollary, the value of field validation studies, for quality control purposes, during the future, decentralized coding operations, as a check against field classification and coding judgments, is apparent.

3. When billet data are available, coding errors of judgmental or clerical nature are kept below 1%. Assuming the proper use of the ONJC by field activities, classification errors should be kept within this figure.

4. The favorable reception given to the ONJC at all levels of command and in all types of activities indicates an awareness of its usefulness as a classification and manpower planning device.

5. In view of the recommendations for ONJC changes growing out of the field visits, continuous field study, possibly in conjunction with quality control measures, is needed for the constant improvement of officer billet classifications and codes.

D. BY-PRODUCTS

In a study such as this, cutting across every type of naval activity and affecting every level of command and staff functions, certain by-products of investigation inevitably develop.

In the interest of better planning and better use of the management tools which are available to planners, these by-products are reported.

They are summarized here as observations and impressions of the contractor's staff, with particular reference to the understandings, skills and attitudes of planners, and of the action they are now taking.

1. Understanding of the problem

At every level, but particularly at the activity level, there is a growing appreciation and better understanding of the Navy's manpower problem, of the planning function, and of the methods that can be used to achieve better planning.

Growing out of the contractor's participation in meetings of bureau representatives and in conferences with activity staff members during the course of field validation studies, it was evident that there was no

universal understanding of mobilization planning. Although on occasion initially resistive, and sometimes even hostile, every activity, without exception, cooperated fully upon learning why the classification data are needed and how they will be used in the quantitative-qualitative expression of manpower needs.

This positive, enthusiastic response may be attributed, in part, to the better understandings and attitudes with regard to the What, Why and How of mobilization planning.

2. Planning Tools and Methods

There is also a better appreciation and understanding of the tools and methods available to the planner.

In the first place, there is a better grasp of personnel classification, in the distinctions between the billet or job, on the one hand, and billet classifications, as expressed in the ONJC, on the other; and between the requirements or demands of the billet and the qualifications of the billet incumbent. After one conference, a section head reported to the Principal Investigator, "I have been trying for years to get my people to distinguish between classes of jobs and classes of people. I believe they now understand the difference, for the first time."

Secondly, there is growing awareness that planning and the classification function cannot achieve its objectives without basic, definitive data, and specifically, billet descriptions. With the exception of one or two activities, most naval establishments have been relying upon Organization Manuals, Staff Instructions and Bureau Regulations which, in most cases, contain only general information on billets, much of which is in the form of descriptive titles or statements.

Although the contractor's recommendation that billet descriptions be obtained at the outset from all non-standard naval activities was considered to be not feasible, it is interesting to note that most activities exceeded the minimum requirements for billet description data when such data were formally requested. In fact, many activities were grateful for the opportunity to collect the kind of billet description data that had been needed for years. Typical of the sentiment expressed was the following statement of a bureau planning officer who obtained descriptions on 1500 billets: "I have already started six different projects based on the billet descriptions we collected for your project. I don't know how we ever operated without them."

Thirdly, there is a general feeling that military job classification has been the missing link in naval personnel administration and that the ONJC is a long-sought solution to the problem. Personnel who have had an opportunity to study the ONJC feel that, on the whole, it is comprehensive, complete and easily used, and that while indispensable to effective manpower planning, it will serve other useful purposes, such as detailing, procurement and training.

3. Improved Planning

As a result of the classification and coding activity, planners have been forced to think, not only in terms of numbers, but also in terms of the kinds of billets. This wedding of quantity and quality, particularly when expressed through the medium of billet descriptions, has tended to convert vague quantities into more precise definitions of need.

Attention has also been directed to the activity's organization plan as a reflection of the mission and tasks assigned. It is apparent from the revised complements submitted during the course of this study that organization plans of activities have undergone considerable revision in the light of revised manpower requirements.

While no data were gathered by the contractor, it is evident that in many instances, considerable savings in numbers and kinds of officers, particularly specialists, have resulted. One bureau, for example, reduced its officer requirements by 120; another command reduced its total by 39.

The new approach to manpower planning is recognized as a device that will minimize padding. As one high-ranking officer put it, "The use of billet descriptions and ONJC coding will squeeze the water out of our estimates and help make our planning realistic."

CHAPTER V. CONCLUSIONS AND RECOMMENDATIONS

As a result of the classification and coding research conducted, it may be concluded that the Navy has laid the groundwork for systematic and realistic officer manpower mobilization planning. The MANUAL OF OFFICER NAVY JOB CLASSIFICATIONS is a practical and valid instrument for the expression of the Navy's qualitative requirements. Assuming its proper maintenance and refinement, on the one hand, and its use by qualified and trained classifiers, on the other, not only will the Navy's officer manpower needs be fully expressed, but also substantial savings in both critical skills and numbers should result.

Specifically, the following conclusions and recommendations may be summarized:

A. CONCLUSIONS

1. Qualitative Expression of the Navy's Officer Manpower Requirements

The classification and coding project, entailing a 95% sample of activities and a 98% study of estimated billets requiring analysis, resulted in the firm classification and coding of 64,478 billets, which is 90% of all the billets requiring coding. With the machinery set up to complete the remaining workload, the Navy will have, upon machine tabulation, a reliable first-count of its officer manpower requirements for mobilization.

Even more important, there is evidence that substantial savings in both critical skills and numbers should result. This conclusion is based upon the contractor's review of supplements which have been revised during the course of the study and upon informal conversations with key activity officials who are confident that the new method will produce a more realistic expression of manpower requirements.

Although the reliability of coding varies, depending upon the type of naval activity, the total results are considered highly reliable. Field validation studies indicate that the incidence of coding errors, resulting from the coding of titles alone, range from 48% in the case of highly complex staffs, to 10%, in the case of various shore stations. These errors are offset by the high degree of reliability obtained from the coding of billets for which billet descriptions were available and from the coding of billets in standard-type activities, such as ships, which in terms of total numbers, predominate.

In view of the very low incidence of judgmental and clerical error, which was found to be less than 1% when data were available, it may be concluded that the first machine run will produce quantitative-qualitative data, of an estimated 5% error. In view of the fact that this approach is new, utilizing a new instrument, the results to date are considered noteworthy.

Furthermore, in light of the research classification and coding experience and the policies, methods and procedures developed, it would

appear that an even higher degree of reliability should obtain in the future conduct of the program. It is axiomatic that the better the data, the better the coding. And since the data exist where the work is performed, it follows that coding should be accomplished best at the activity level. On the other hand, this presupposes the requisite classification and coding skills at the activity level, appropriate review at the various levels of command, and quality control at the Departmental level. Above all, continuing close administrative supervision and training are "musts" to make the program work. Considerable thought is being given to these problems by the Navy at the time of this report.

2. The ONJC as a Classification and Coding Instrument

While final judgment rests with Navy-wide usage over a period of years, the evidence at this time is that the ONJC is comprehensive, complete and definitive; is well-organized and easily used; and is acceptable at both policy and operating levels. And while a number of refinements and improvements need to be made, the ONJC has proved itself as a practical and valid classification device.

The simplicity of the ONJC makes it a convenient instrument for field use during the decentralized classification and coding of officer billets. As a dictionary of naval officer jobs, it will, of course, serve many other uses.

3. Field Validation

Field validation was found to be a necessary adjunct to the coding of non-standard type activity billets when definitive billet data were lacking.

While it should not be necessary to conduct extensive validation studies when billet data are developed for each naval activity, such research methods should prove to be invaluable with respect to further refinement and improvement of the ONJC. There is no substitute for study at the activity level, where the work is performed and where, in the final analysis, reliable data can only be obtained.

4. Manpower Planning

It can be concluded that as a result of the impact of the Navy-wide classification and coding of officer billets, the quality of manpower planning has improved and will continue to improve.

In the first place, there is a new understanding of the Navy's manpower problem and of the methods, that can be used to solve it. The ONJC has provided what many consider to be the missing link in naval personnel management, and will focus, for the first time, attention on the requirements of the billet as against the historical approach which utilized gross categories and tended to emphasize qualifications of incumbents.

Secondly, with the growing appreciation and understanding of classification, and particularly naval classification, increased attention has been given to the preparation of billet descriptions. Whenever such data have been used, the vague and general has been reduced to the clear and specific, with actual savings resulting, or at least, for the first time, a realistic statement of requirements emerging. Such billet data have also been found useful for many personnel management purposes, over and above the specific planning use.

B. RECOMMENDATIONS

1. In order that classification and coding may be accomplished at the activity level with results that are both reliable and valid, it is recommended that a Manual for Field Classifiers be developed.

2. The Manual for Field Classifiers should contain, among other items, the following:

a. The relationship of accurate classification to mobilization planning.
b. An explanation of classification, in general.
c. An explanation of naval officer classification, including the significance and use of Designator Codes, the ONJC and Officer Qualifications Codes.
d. The preparation of billet descriptions, in standard format.
e. The What, Why and How of classification and coding of officer billets.

An outline of such a Manual has been submitted to BuPers Research by the contractor.

3. The above manual would also serve as a curriculum governing courses at the various naval officer training levels, as well as correspondence courses for both regular and reserve officers. In any event, it is recommended that present personnel management curricula and course materials be expanded to include the subject of officer billet classification.

4. In addition to the administrative direction and supervision required to make a program of this type work, quality control measures are necessary to assure the reliability and validity of the final end product. Because of its resources, particularly in the field of occupational analysis and classification, the Bureau of Naval Personnel is the logical staff office to perform quality control functions. It is therefore recommended that the combined resources of the Complements and Allowances Branch and the Research Division be employed for this continuing purpose.

5. In terms of quality control operations, it is recommended that the field validation techniques utilized by the contractor be used to spot-check the classification and coding operations of a particular activity. Such studies should examine the adequacy of billet data and entail on-the-spot training of activity classifiers to improve the quality of work performed. The tendency, for example, to use the ONJC classifications as a substitute for billet descriptions which reflect the unique work of an activity, needs to be guarded against with vigilance.

6. It is recommended that consideration be given to the coding of allowances. Not only will more precise current billet requirements improve the Navy's personnel management program, but it would seem that current requirements matched against mobilization requirements would provide valuable planning information, particularly in terms of future procurement, training and utilization needs.

7. The recent BuPers suggestion that complements and allowances be physically combined on the same form is considered forward-looking, in that it would relate current operations to mobilization plans, and is therefore recommended. While

there is not always a close relationship between allowance billets and complement billets, owing to the greater specialization possible in the latter, in actual planning practice it is difficult, if not impossible, to separate the two. Such a combination would facilitate the coding of allowances, would assure a more orderly expansion of the Navy in time of mobilization, and would provide a tool for the more critical evaluation of plans.

8. While the contractor's validation of the ONJC in actual classification and coding practice has resulted in a number of modifications which improve the instrument, many recommendations for further improvement have yet to be investigated by the BuPers Research Division. Since these recommendations are contained in classified communications previously submitted and are of such a detailed nature, they are not repeated herein.

9. Since there is nothing static about occupations and particularly naval occupations where the effect of new weapons is constantly being felt and new classes of billets are constantly evolving, it is recommended that sufficient staff be assigned to the maintenance of the ONJC and that such work be given a high priority.

10. Such constant research on the classification instrument ties in logically with quality control and field validation procedures referred to above, and requires machinery for the systematic exchange of data between field activities and the Bureau. As the field uses the ONJC, there are bound to be many recommendations for additions, deletions and revision. Unless such recommendations are carefully investigated by a disinterested, research activity, the ONJC, in the years to come, will suffer in comparison with the high standards which characterize the first edition.

11. Growing out of the by-products of this study, there is considerable evidence that steps need to be taken to improve planning at the activity level. Since many officers, in the rotation process, are given planning assignments without standardized training in the principles, policies and procedures involved, it is recommended that consideration be given to the development of a Manual for Mobilization Planners.

12. Such a Manual, it is felt, should cover the policies, principles and methods of organizational planning, workload distribution, establishment of billets, etc. In structure, it should be closely referenced to the Manual for Field Classifiers, recommended under 1 and 2 above.

13. Since organization cannot be divorced from billet classification, the development of the Manual could well be a joint project of the BuPers Research Division, BuPers Plans and Policies and the Navy Management Engineer's office.

14. The contents of the Manual for Mobilization Planners could provide the basis for Post Graduate School and correspondence courses. If not already emphasized in staff college curricula, it is recommended that the addition of mobilization planning subject matter be considered.

15. In order to improve the understandings and attitudes of planning personnel at the activity level, it is also suggested that statements on the Navy's manpower policy, planning objectives, and planning procedures be issued periodically. Such information would tend to impress the personnel concerned with the importance of planning and thus promote better planning performance.

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